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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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THE SPEED OF VESSELS.

Lloyd's latest publication shows that out of the 13,000 steamers recorded in the "Registry," only 45 vessels have a speed of 19 knots and above, and of this number 18 are credited with a speed of 20 knots or over. Of the former number 25, or more than half, were built on the Clyde, while of the 20-knot boats 12 are Clyde built, 3 have been constructed in other parts of the kingdom, leaving three for abroad. Foreign builders constructed a dozen of the 45 of 19 knots and over, but, on the other hand, foreigners own 20 of these 45. The remarkable fact is that of the 20-knot boats 9 are paddle steamers and 9 twin screw, none being single screw. For high speeds, therefore, the single screw is of the past; and it might also be said that the side paddles are giving way to twin screw propulsion. The difficulty hitherto has been the draught of water available, the paddle requiring less water in which to work than the screw propeller, which must be completely immersed. But when it is remembered that in action a screw propeller is similar to a wheel revolving, it will be understood that by increasing the revolutions it is possible to reduce the diameter and still get the same speed. Improved types of engines make this higher revolving possible, but it at the same time more thoroughly demands careful work in construction. A few years ago 90 revolutions was high; now 200 is exceeded in several vessels and 400 has been reached in torpedo craft. Another circumstance which makes the screw propeller preferable is that it has, as a rule, only half the slip of the side paddles. Slip is used in the same sense as in the case of a locomotive wheel. The slip of a 20-knot paddle steamer is 26 to 30 per cent. the forward motion, against 13 to 15 per cent. in a twin screw steamer. Again, the proportion of weight of machinery to the total weight of the steamer is less in a screw steamer, since more has been done to lighten the parts than with the paddle engine. In the latter 8½ I. H. P. has been got per ton weight, in the former 11 I. H. P. per ton. In a paddle steamer 45 per cent. of the total weight goes in engines; in a screw steamer where more provision is made for cargo, only 31 per cent. of the total is for machinery.

CANADIAN SOO CANAL TO BE OPENED NEXT SPRING.

Advices from Ottawa, Ont., state that although the Canadian Soo canal will be completed this month, and vessels will pass through it this fall, it has been decided to defer the formal opening until next spring. Hon. John Haggart, minister of railways and canals, having just returned from the Soo, where he went to superintend the letting in of the water to the canal, expresses himself as satisfied with the work.

COAL OUTPUT.

The total production of coal in this country in 1893 was 162,814,977 tons. The production in Great Britain during the same period was 164,325,795 tons. The United States during the same period produced 11,587,629 tons of iron ore, while the United Kingdom produced 11,203,476 tons and imported 4,000,000 tons. The United States turned out 7,125,502 tons of pig iron, while the British Isles produced 6,976,990 tons. There is a remarkable correspondence between the relative production of the two countries in these respects during the last year.

SWEDISH IRON.

The excellence of Swedish iron has long been known. The ore comes from the most northerly mines in the world, so far north that if they were in America it is doubtful if they could be worked at all. They are in the Swedish province of Norrland, and they are 47 miles above the Arctic circle. They are capable, if worked to their full capacity, of supplying all the world with iron. The same province of Norrland is no less rich in forest. It ships annually twice as much lumber as is furnished by the United States. The iron comes from the Gellivara mines. It was an occasion of great rejoicing, therefore, when recently the railroad was opened direct from the Swedish seaport of Lulea to the iron mines and the lumber region. This is the most northern railroad on the earth.

THE SOLAROMETER.

Lieut. W. H. Beehler has returned to the navy department from the trip he took abroad for the purpose of testing his invention, the solarometer. Lieut. Beehler has made an interesting report to the department on the results obtained from the instrument. He sailed on the North German Lloyd steamer Weimar from Baltimore on August 15th and returned to the United States September 19th. Lieut. Beehler's report states that during the 25 days spent at sea, 169 determinations of the ship's latitude and longitude and her compass errors by observation of the sun and stars at all hours of the day and night were made with the solarometer. Much to his regret, no fog was experienced. The degree of accuracy was the same as that obtained with the sextant. Lieut. Beehler took his solarometer to Paris, and gave a lecture upon it at the French Ministry of Marine and Colonies, and also exhibted it to the officers of the German Naval Observatory at Hamburg. Six of these instruments are being built in Washington, one of which will be tested by the navy, probably on board the flagship of the North Atlantic squadron, and the remainder will be distributed among the several transatlantic steamship lines for test.

THE PANAMA CANAL.

The latest advices in respect to the revived project for completing the Panama canal are that the work will actually be resumed this month. The scheme, as modified, is estimated to cost a further 20,000,000 sterling. The original design was to cut the canal through the isthmus at sea level, with sufficient depth for the largest vessels. The enormous height and bulk of the Culebra Mountain, and the extraordinary vagaries of the Chagres River, which in the rainy season is an uncontrollable torrent, seemed, however, to be insurmountable difficulties in the way. The new scheme ingeniously disposes of these impedimenta. Starting from Colon, the canal is to be carried, as originally designed, as far as Bujio; but at this point an enormous dam is to be constructed, which will back up the Chagres River into a huge lake, extending well up the sides of the Culebra Mountain, reducing the required amount of excavation enormously, and at the same time doing away with the torrential flow of the river. Access will be given to this lake at each end by a system of three locks. The lake will be 100 feet or so above the sea level. It is understood that the bulk, if not the whole, of the funds will be found by the French.

INSURANCE MUST BE PAID IN FULL.

The Canadian Superior Court recently awarded the Richelieu & Ontario Navigation Co. $20,000 insurance on the burning of one of their steamers, the Corinthian, two years ago. The company's claim was $40,000. They appealed from the decision of the Superior Court and the Court of Appeals has just rendered a decision awarding them the full amount claimed with two years' interest at 6 per cent and costs. There are sixteen insurance companies interested.

NEWS AROUND THE LAKES.

CHICAGO, ILL.

Special Correspondence to The Marine Record.

J. J. Lynn, of Port Huron, was in Chicago on Tuesday.

The steamer Cyclone has gone into winter quarters at Saint Joseph, Mich.

Carr & Blair chartered the steamer D. C. Whitney for corn to Buffalo at 1¼ cents.

P. Finn chartered the steamer Monteagle for 50,000 bu. corn to Kingston at 2⅞ cents.

Capt. Ed. Napier is having a new engine placed on the steamer Macataw at Saint Joseph, Mich.

The schooner Skylark was sold to John A. Gardner, Chicago, in exchange for real estate in Minneapolis. Capt. O. E. Hogebaum has been appointed master of her.

August Storvorg, a sailor, one of the crew of the schooner D. R. Martin, fell overboard Friday, between the schooner and the dock in E. slip, Mud Lake, and was drowned.

The Chicago Board of Marine Underwriters advanced grain insurance rates, on Friday, to the following figures: To Port Huron, 60 cents; Buffalo, 70 cents; Montreal, 90 cents.

The whaleback steamer Christopher Columbus ran her last excursion for this season on Sunday last to Milwaukee and back. She was taken to South Chicago, Monday, to be placed in winter quarters.

The passenger excursion steamers Manitou, John A. Dix, Lawrence, Rome, Juliet, Chief Justice Waite, Sailor Boy and Post Boy, Duluth and Superior, are already in winter quarters at South Chicago.

Of the insurance on the Neosho, $22,000 is known to have been placed with New York agencies, David Vance, of Milwaukee, had $10,000 and the London Assurance $12,000. Smith, Davis & Co., of Buffalo, also had a large line.

J. G. Keith & Co. chartered the steamer Missoula for barley, South Chicago to Buffalo at 1¼ cents, steamer John Duncan for wheat to Buffalo at 1½ cents, the steamer C. F. Beilman for barley, South Chicago to Buffalo at 1¼ cents, steamer Pentland corn to Port Huron at 1¼ cents.

At Miller Bro.'s shipyard the tug James Hay was in dock for some new bottom plank and calking, the steamers Brittanic and Commodore and schooner I. M. Forrest to have leaks stopped, the schooners Ives, Lawson and Rouse Simmons for bottom calking, the tug Alert for a new wheel.

The schooner T. Y. Avery, Capt. Fred Shiner, was stripped and went into winter quarters Friday. The schooner Mediator, Capt. C. Petersen, was stripped of her sails Monday morning, soon after her arrival on the lumber market. She will go into winter quarters as soon as she is discharged.

Mr. Richard E. Rispin, late general agent at this port for the Sun Insurance Co., San Francisco, has severed his connection with the company. It has not been generally known, but the marine secretary of the "Sun" informs me that Mr. Rispin had let go the affairs of the company on March 20th last.

Capt. John Prindiville chartered the steamer D. M. Wilson for steel billets, South Chicago to Cleveland, at 50 cents per ton free of handling, steamer Brittanic for wheat to Kingston at 2⅞ cents free of tolls, steamer Quito for corn to Prescott, Ont. at 4 cents, steamer Lansing oats to Midland at 1⅛ cents.

A dispatch from Sault Ste. Marie, Mich., of October 1st, says the schooner C. P. Minch, bound down with stone, had a rough experience with the gale on Lake Superior. She lost her fore boom, forsail, jib and yawl. She is leaking 5 inches an hour. The heavy northwest gale continues. The Minch is owned by C. W. Elphicke, of Chicago.

Elphicke & Co. chartered the steamer J. J. Hill for 42,000 bu. corn to Oswego at 2¾ cents, steamer Josephine for 40,000 bu. wheat and consort Thomas L. Parker 45,000 bu. wheat, from Duluth to Kingston, at 4¼ cents, steamer Argonaut for 80,000 bu. oats, Chicago to Midland, at 1⅛ cents, steamer Iron Age, for 50,000 bu. wheat and consort Iron City for 48,000 bu. wheat to Buffalo at 1½ cents.

The steamer E. A. Shores, Jr., has had her port of hail changed to Chicago, and Capt. Louis Oleson has become managing owner. The E. A. Shores Jr., is one of the best lumber carrying steamers owned at Lake Michigan ports. She has a carrying capacity of nearly 750,000 feet of lumber and her powerful machinery makes her very speedy. Capt. Oleson says she steams 13 miles per hour loaded and 15 miles per hour light.

When the whaleback steamer Christopher Columbus and the Goodrich line steamer Virginia left Milwaukee for Chicago Sunday evening the Virginia cleared the harbor piers six minutes ahead, and whistled for a race. The Columbus accepted the challenge and as even a contest as could be waged was the result. It was level throughout, the Virginia having a lead of just six minutes when Chicago was reached, so the boats seem fairly well matched.

Palmer, Cook & Calbick chartered the steamer Monohansett and consort Grampian for oats to Port Huron at 1⅛ cents, the steamer W. H. Wolf for wheat to Buffalo at 1½ cents, steamer Walter Vail for wheat to Buffalo at 1½ cents and consort Baltic for oats to Buffalo at 1¼ cents, steamer W. P. Ketcham and consort Geo. B. Owen for oats to Buffalo at 1⅛ cents, steamer Toltec for corn to Buffalo at 1⅜ cents and consort Miztec wheat to Buffalo at 1½ cents.

The fuel oil test on the tug Black Ball last week was a success. It was demonstrated to the satisfaction of all who witnessed the severe trial that oil is a practical, economical, besides being smokeless. During the ten hours that the tug was in service, with its engine working almost continually under a full head of steam, the smokestack emitted scarcely a hatful of smoke and the steam was kept at the "blowing off point" every minute. There were plenty of skeptical witnesses present to witness the test, but all were forced to admit that the demonstration was a surprise to them and no severe criticisms were made. Every effort was made to put the boat to the most severe test possible by making her tow twice as heavy a load as ever before. Three of the largest mudscows on the river were taken from the north end of the drainage canal at Robey street, down the river and out into the lake beyond the two-mile crib, where they were dumped and towed back up the river empty. The trip was made in three hours and ten minutes. Owners of other tugs said before the trial if the boat could tow one loaded scow to the mouth of the river in four hours they would be satisfied and would admit the trial a success. The tug could not have made the trip at all with coal for fuel, but with oil she had steam to spare on her return.

CLEVELAND, O.

Special Correspondence to The Marine Record.

Capt. David Vance, the well known underwriter, visited this port on Tuesday.

Capt. Harvey Peters has been appointed master of the schooner Moonlight, owned by Capt. W. S. Mack.

Capt. Palmer was badly injured by a fall on Friday last, but is recovering from the effects as fast as could be expected.

J. J. Hill and General Manager Gordon expect to reach this port on Friday to enter into consultation with the builders relative to the completion of the steamer North Land, sister ship to the North West.

Capt. J. H. Palmer has bought a one-twentieth interest in the iron steamer Onoko from Cyrus Bosworth on a basis of $140,000 whole value. The Onoko was built in 1882 and has always been a money earner.

It is likely that a delegation from the Lake Carriers' Association will visit Washington next week to confer with the light-house board relative to the new aids to navigation which have already been asked for.

The new steering and sailing rules which will go into effect next March have been generally talked of among vesselmen this week, and it is fortunate that due notice has been given of the change so that next winter all hands can get thoroughly posted on the new rules.

The compact among owners at this port to hold the Lake Superior coal rate to fifty cents has been declared off until October 15th, and the rate is now forty cents. At this figure it is thought that nearly 50,000 tons more coal will be shipped this season to the head of the lakes than there would have been under the higher rate of freight.

Mr. T. W. Bristow, superintendent of construction at the yards of the Cleveland Ship Building Co., has the sympathy of a host of friends in marine circles in the death of his wife, Mrs. Mary Bristow, who passed away Tuesday at their residence, No. 260 Waverly avenue, after a protracted illness. The funeral services will be held at the residence Friday afternoon at 2 o'clock, sun time.

Although the latest report from the Neosha, ashore on Spectacle Reef, states that she is badly hogged and generally a wreck, Capt. Geo. P. McKay was willing to bet a new hat on Thursday that Capt. Mart Swain would have her afloat again in short order, although no one covered the bet. Those present admitted that if any one could release the vessel, Swain, with the tug Favorite, could do it.

At a meeting of the Cleveland & Buffalo Transit Co., held on Tuesday in the office of General Manager T. F. Newman, a complete statement of the company's business up to Oct. 1 was submitted, which the board found extremely satisfactory. In this connection was discussed the matter of adding to the company's fleet a steamer of greater capacity for both freight and passengers, but for the present no decision has been reached, although some of the directors are in favor of building a large speedy boat at once.

The time-ball at the branch hydrographic office is in place and this city may now consider herself a full-fledged seaport. Ball's time is nowhere compared to the time-ball, for to ascertain chronometer time by Ball's it is necessary to brace up to the window of the jeweler's on one of the down-town streets; not so, however, with the time-ball at the hydrographic office, for with the aid of a telescope it can be seen for miles, and with the naked eye alone, with a fair elevation for a distance of at least two miles, in a clear atmosphere.

BUFFALO, N. Y.

Special Correspondence to The Marine Record.

Coal shipments for the week ending September 30 were 65,650 tons. There was a slight increase over the average for the month. Receipts of package freight have been very heavy. Flour exceeded 100,000 packages in one day over previous records, and nearly that amount on another day during the week past.

City officials from Cleveland were here last week and witnessed the successful launching of the new fireboat for that port, named the John H. Farley in honor of the director of public works. The Farley, built by the Union Dry Dock Co., Edward Gaskin superintendent, has a model fireboat hull in every respect, and Mr. Gaskin took the contract clean out of the hands of Cleveland builders. She will be towed around to Cleveland to have her fire fighting mechanism fitted and will leave here in a few days.

When the passenger steamer North West laid up here last week, Capt. James H. Killeran, marine superintendent of the Northern Steamship Co., was asked to step into the smoking room of the steamer. He complied, and then Capt. Campau, in the name of the officers and crew, presented to him a valuable gold watch and chain. Capt. Killeran, who apparently is popular with all men connected with the company, was, to say the least, dumbfounded. He endeavored to say something, and really succeeded, in reply to a warm speech by Capt. Campau. The watch is beautifully engraved. On the front cover is the steamship North West and on the back the monogram "J. H. K." On the inside is the inscription: "Presented to Capt. J. H. Killeran by the officers and crew of the North West." The charm attached to the heavy gold chain represents the "Starboard Side Light," which is, the recipient says, the most perfect piece of work he ever saw.

A wonderful mirage was visible in Buffalo recently, and it is remarked that scientists, with all their learning, have never yet been able to determine concisely the cause of a mirage. One form of mirage is the case wherein the picture of a landscape seems to be lifted up and painted upon the sky above the landscape. Of this kind was the Buffalo mirage. The city of Toronto, with all its streets, spires and parks, was distinctly seen on the sky to the north of Buffalo. Toronto is 56 miles from Buffalo. In front of the sky city was Lake Ontario in its whole breadth, steamers being so plainly discernible that it was possible to tell what boats they were. The Norseman was one of these steamers, and two packets that ply between Lewiston and Toronto were also plainly seen. The scene was like a picture of enchantment. It lasted nearly or quite half an hour, and 20,000 people in Buffalo witnessed it. Such mirages

in the eastern states are very uncommon, though they are seen comparatively often on the western prairies.

In a half-column article this week the *New York Mercantile and Financial Times* eulogizes the late firm of Galvin, Clark & Boland. In this connection our contemporary says that probably few people are aware that Buffalo is the fifth maritime port in the world, and that, according to census figures, no fewer than 22,000 craft conducted transportation on domestic waters, while its grain receipts are larger this year than ever. Following up the trend of the article, we are told that the change from the former firm name to the present came about through Capt. Galvin being appointed U. S. supervising inspector of steamboats, and thus withdrawing from private business. The present firm is composed of Capt. Alex. Clark and Mr. John C. Fitzpatrick, ship brokers, marine insurance agents and vessel agents. They buy and sell vessels on commission and secure cargoes for vessels in grain, iron ore, hard and soft coal and lumber, etc. They place marine insurance on vessels and cargoes. The firm of A. Clark & Co. are responsible and reliable. Capt. Clark has himself considerable investments in vessels, real estate, etc., and is a worthy exponent of his calling; is popular, highly respected and whose character will bear the strictest investigation as a gentleman of honor, widely known in social and financial circles. Mr. Fitzpatrick is a keen-sighted, far-seeing gentleman of very rare business abilities, active, pleasing and very courteous in manner, and he is in every way a most valuable acquisition to the firm and his senior partner. He is well versed on all matters concerning lake transportation. Last year he represented the C. & B. line of steamers, opening the Buffalo branch for that company as agent of that successful line, and in which he is yet a stockholder. Mr. Fitzpatrick has also several investments in vessels and owns considerable real estate. With such gentlemen as Capt. Clark and Mr. Fitzpatrick —men of integrity and energy—the firm of A. Clark & Co. has a bright future prospect of positively undoubted success.

DULUTH AND SUPERIOR.

Special Correspondence to The Marine Record.

Shipments for the week were: Wheat, 930,000 bushels; flour, 200,000 barrels; ore, 78,000 tons; lumber, 10,000,000 feet.

There were great expectations of a coal strike Monday when the coal handler union of Superior sent word to the coal dock owners that they must have the old rate of wages at once. The strike resolved itself, however, into the going out of a handful of men at the Lehigh Coal & Iron Co.'s dock. There is as yet no trouble elsewhere, and probably will be none.

Receipts of wheat have been heavier during the past week than at any time since the forest fires early in the month. This has brought about a revival of shipping, and last week about 930,000 bushels were moved from here down the lakes. The rate is nominally 2½c. per bushel Duluth to Buffalo, has been paid this week, though 2¾c. with a 4c. rate to Kingston and Ogdensburg, although very little grain is being taken for shipment to either of those ports. The ore market is very firm at 85c. per ton. More strength is shown in lumber than in other commodities. The Buffalo and Tonawanda rate has advanced and is now firm at $2 per 1,000 feet. Stuff bound for Ohio ports brings $1.87½ and shippers are offering $2.12½ for boats to carry lumber to Chicago, while vesselmen are holding out for $2.25. Lumber shipments last week were about 5,000,000 feet; ore about 120,000 tons from Duluth and Two Harbors.

DETROIT, MICH.

Special Correspondence to The Marine Record.

The Alexander Nimick went into the Detroit dry dock this week for a new wheel.

John H. Galway has been appointed supervising inspector of steamboats with headquarters at this port.

The steamer Wyandotte has finished her season on the Amberstburg route and will be laid up at the Clark dock. The Newsboy takes her place.

The steamer Mary McGregor was chartered here for lumber from Duluth to Chicago at $2.25. This is the best lumber charter that has been made on the lakes this season.

Although the Neosho is reported in very bad shape on Spectacle Reef, she will be got off and towed to port if Capt. Mart Swain, with the powerful wrecking tug Favorite, can accomplish it, and if not then there will be no chance for any other expedition to get anything.

The suit against the steamer Cambria for damages caused by the overcrowded condition of the boat, by which three passengers hailing from Detroit had to sleep on one cot, has been settled out of court. The amount of damages has not been made known, but the sum was small, the passengers being satisfied by vindicating their position in the matter.

The cargoes of the steamer Hayward and the schooner Peshtigo were offered for sale this week by the United States Marshal. They consist of something over 700 cords of cedar, which was libeled by the owners of the vessels for freight and demurrage charges. The highest bid was $5.05 per cord, which the marshal considered too low, and he postponed the sale.

J. M. Jones & Co. received a telegram from Capt. Alonzo Carter, of the schooner Jennie White, dated at St. Johns, N. B., saying that the vessel lost her rudder in the Gulf of St. Lawrence and while beating under Magdalen Islands ran aground and was a total wreck. She was rated in the Inland Lloyds at $3,500. She had been chartered for the phosphate trade on the Atlantic coast and when lost was on her way there. Capt. Carter will return to Detroit.

Capt. Martin Swain of the wrecking and salvage tug Favorite sent a dispatch to the underwriters on Tuesday giving a very poor outlook for saving the Neosho ashore on Spectacle Reef. He said the expedition had succeeded in getting the boat clear of water with four pumps after 100 tons of ore had been lightered. The southeast gale had then driven them away. He expected that the gale would use the boat up. She was hogged four feet and was in a bad condition generally. He considered her a total loss. As soon as possible the Favorite will make another attempt to float the steamer and in any case will save the four steam pumps which were put on board.

A LAKE MICHIGAN YACHT CLUB.

Lake Michigan yachts are nearly all laid up for the winter. The yachting season of 1894 has been one of the most brilliant in the history of lake yachting. It has been marked by a closer intimacy between the yachtsmen of the various ports on the west shore of Lake Michigan, which was largely brought about by the formation of the Lake Michigan Yachting Association early in the season. Milwaukee, Racine, Green Bay and Chicago clubs are all represented. There is a plan on foot among Chicago yachtsmen to form one club which shall represent them all. It is not intended to do away with either of the clubs, but for all yachtsmen to join themselves together and revive the old Chicago Yacht Club, which has been dormant for several years. The fleet of such a club would comprise not less than thirty sail yachts and ten steam craft.

ITEMS FROM THE LOG BOOK.

The secretary of the treasury has appointed M. Spencer assistant keeper of the light-station at Point Betsey.

The steamer Mary H. Boyce, which has been laid up at Grand Haven, Mich. all summer, has cleared for Escanaba for her first cargo this year.

The steamer Italia reports having picked up the steamer V. H. Ketcham, which was drifting in the gale, with disabled machinery, off Hammond's Bay, Lake Huron. The Ketcham was towed into Cheboygan.

The schooner Maggie M. Avery, of Grand Haven, stranded Friday in South Manitou harbor, dragged her anchor and is a total loss. She was built at South Arm, Mich., in 1888 and was owned by Mary E. Dykes, of Grand Haven.

The light-house keeper of Spectacle reef announces that the third-class can buoy marking the spit off the south point of Mackinac island was taken away by the wheel of the steamer City of Traverse Tuesday morning. A new buoy will be provided and placed in position in a few days.

Work has been commenced on the big steel steamship to be built at Wheeler & Co.'s yards for Capt. John Mitchell, of Cleveland. In a few weeks between 200 and 300 men will be employed on this work. Mr. Wheeler is figuring for another large contract and if it comes his way, the force of men will be increased to 500.

The old schooner American, coal laden, from Oswego to Montreal, sank between Oswego and Stony Point Sunday night. The vessel measures 232 net tons, was built in Three Mile Bay, N.Y., in 1870, and was owned by T. Donovan, of Oswego. The crew were all saved. The insurance on the boat was placed with Smith, Davis & Co., of Buffalo.

Shipments from Bay City for the month of September exceeded those for last year in the same period by nearly 10,000,000 feet. The total shipments are: Lumber, 25,000,000 feet; lath, 595,000 pieces; shingles, 600,000; salt, 5,035 barrels. Shipments from Saginaw: Lumber, 5,000,000 feet; receipts during the month were 5,940,000 feet of lumber.

The ore receipts at Ashtabula, O., for September were 283,371 tons, total for the season 1,614,220 tons. Coal shipments for September were 143,000 tons. Shipments for the season are more than double the shipments of 1893 and will probably make Ashtabula the greatest shipping port of bituminous coal. The increase in coal shipments is due in part to the car dumping machine, which gives boats quick dispatch.

The output of the Clyde in shipbuilding for the first eight months of this year aggregated 169 vessels of 208,265 tons, the highest months being April, May and June, when 30, 38 and 40 ships were put afloat for each month. This has been considered a dull season in shipbuilding throughout the Scotch yards, but the above figures may indicate to American builders what a dull season over there means.

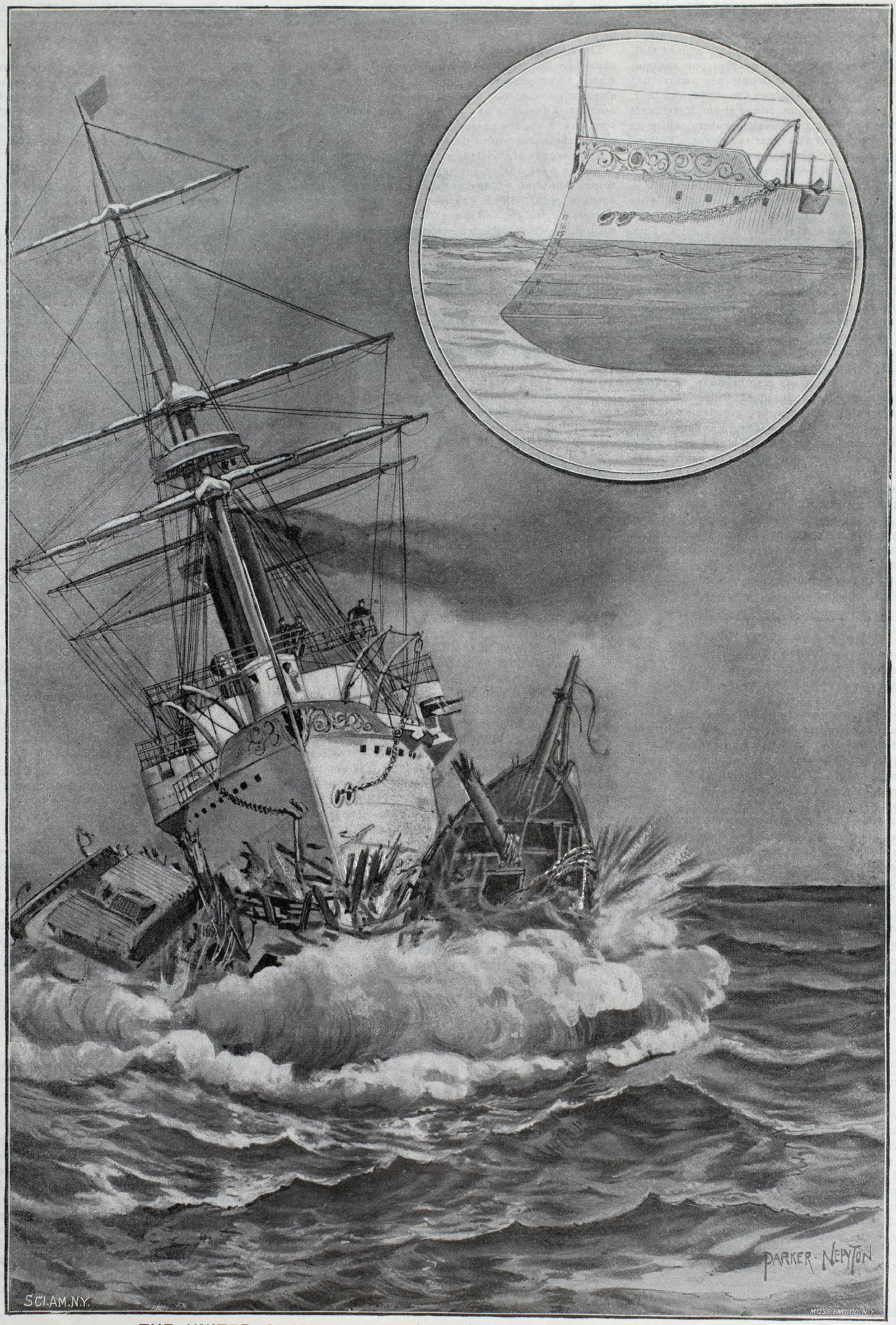
It is now reported that Capt. J. Davidson has bought the burned hulk of the steamer Waldo A. Avery and will rebuild the steamer at Bay City. The Avery was burned in the Straits last December and run on the beach at McGulpin's Point. The underwriters who paid the loss and took the wreck, raised it last spring and towed it to Duncan City. There is not much left of the steamer worth saving except the machinery.

The steamer Robert Mills, which was run into by the Union liner H. J. Jewett, near the Straits some time ago, is in drydock at Milwaukee, and it is thought that two weeks will be required to complete her repairs. The shipyard bills are estimated at from $9,000 to $10,000, and the entire outlay, wrecking included, in the neighborhood of $20,000. Such an amount is worth including in marine policies the collision clause for the Union Steamboat Co. will be required to foot the bill unless underwriters can be reached through the collision clause.

The bodies of the crew of the foundered schooner Home have all been picked up near where she sunk. Those of Capt. C. P. Henderson and Alex, Beuoski, seaman, have been identified, but the others cannot be recognized. The captain's body was sent by the Masonic order to his home in Mexico, N. Y., and Beuoski's to Detroit. The owner of the lost schooner has been indefatigable in his search for the bodies and has done all that he can do in furnishing the fullest particulars to the relatives of those who were lost through the foundering of the vessel.

Some one has been critical enough to send us the following clipping, taken from a daily published at a Lake Superior port: "The great carrier, the Selwyn Eddy, broke another record. She arrived at Buffalo last Monday from Duluth with 12,000 bushels of wheat, and was chartered to take coal to Milwaukee. She was unloaded Tuesday morning and then proceeded to the Lackawana trestle to take on her coal cargo. Loading began at 1 o'clock Tuesday afternoon; at 4:40 o'clock—three and one-half hours—she had on, according to the bill of lading, 9,270.11 tons, drawing 16 feet 8 inches forward and 16 feet 11 inches aft. In addition to the coal cargo, she had on board 230 tons of fuel. This is considered by vessel men a remarkable feature."

The schooner S. L. Watson of the Gilchrist fleet, which was libeled a few days ago by a seaman for $3, was bonded and releasd. The sailor shipped at Ashtabula for a round trip to Lake Superior. The boat went to Lorain to load coal and while there he left the vessel and found work on the docks. The captain of the vessel refused to pay him, as by doing so he thought the balance of the crew could leave him in the same manner. The seaman then returned to Cleveland, but instead of presenting his claim to Mr. Gilchrist, the owner of the boat, who resides at that port, he found an attorney who took the case, and without notifying the owner, had the boat libeled. The costs in the case are $5.85. It is now understood that the owners will make a test case of this paltry libel on the ground of the civil agreement entered into by signing the ship's articles at the time of engagement.



THE UNITED STATES WAR SHIP ATLANTA RAMMING A DERELICT.

(By Permission Scientific American, N. Y

THE UNITED STATES WAR SHIP ATLANTA RAMMING A DERELICT.

(ILLUSTRATED.)

A prominent feature in the construction of all modern war ships, as is well understood, is the ram prow, for use in the sinking of opposing vessels in actual warfare. With this purpose in view, the stem or ram proper projects some distance forward below the water line, and is made exceptionally strong, being also strongly braced and supported in the forward compartments of the vessel. The utility of such construction for the purpose designed received a partial illustration in the ramming, on August 4th, of a derelict, or floating wreck, by the United States war ship Atlanta, which forms the subject of the spirited illustration on our sixth page. The vessel rammed, the Golden Rule, floating at random in regularly traversed waters, was a danger to commerce, and on this account Capt. Bartlett, of the Atlanta, determined to destroy her. The captain says: "We were steaming along at a fair rate of speed when the officer in charge sighted the derelict vessel. We speeded up and struck the wreck about amidships, going through her like cutting through cheese." The wreck, however, although thus cut in two, was not entirely sunk, having been very light and high out of water, her cargo having been empty barrels, but her capacity for inflicting damage on other vessels must have been greatly lessened. It was at first erroneously reported that the Atlanta herself had been seriously damaged, but on this point Capt. Bartlett says:

"As is customary after ramming, we made a careful examination of the whole ship, including our engines, and it was discovered that the key in the crank shaft of the high pressure engine was loose, and was within an eighth of an inch of falling off. We immediately stopped the engines. If we had run ten—yes, perhaps five—minutes longer, the crank would have slipped off. We then shut off the high pressure ports and made for Newport with the low pressure engine."

A recent report from the naval hydrographic office gives some interesting information as to the large number of dangerous derelicts on the ocean. During the seven years 1887 to 1893 the office received 5,024 reports concerning a total number of 1,628 derelicts, of which number 482 were identified and 1,146 unidentified. The average number of derelicts constantly afloat is estimated to be 232 annually, or about 19 per month. Statistics compiled from the reports received show that the average period a derelict is afloat after having been abandoned is about thirty days. The dangerous character of these derelicts is illustrated by the fact that in this period of seven years there have been forty-five collisions with them, which caused the total loss of nine vessels and considerably damaged seventeen others. Seventy derelicts have been destroyed, one by torpedoes and the ram of the United States steamer San Francisco and sixty-nine by fire. Seven other attempts to destroy derelicts are considered to have been unsuccessful, as the derelicts remained afloat for some time after it had been set on fire. Five of these seven had cargoes of lumber that had become so waterlogged as not to be inflammable; the other two were in ballast. In the cases of the sixty-nine attempts regarded as successful, the fact that these derelicts were never seen subsequent to the time they were set on fire is regarded as sufficient proof of their destruction.

The best known of all derelicts upon the ocean seems to be the schooner Fannie E. Wolston, abandoned October 15, 1891, and since reported forty-four times. She has been a derelict 1,025 days, during which she has drifted 8,575 miles, and is supposed to be afloat yet.—*Scientific American.*

A NEW CANADIAN STEAMER.

The Great Northern Transit Co., of Collingwood, Ont., have accepted the plans and specifications of Mr. Robert Logan, of Cleveland, for their proposed new steamer and work will be commenced at an early date. The engines will be fore and aft compound, of inverted cylinder, direct acting, jet condensing type, of 28 inches, and 54 inches by 36 inches stroke. On the trial trip the engine is to be run for six continuous hours, under the inspection of the company's surveyor. The boilers are to be two in number, of the fire box type; length, 13 feet 9 inches; diameter, 9 feet 6 inches. They will be steel, having a tensile strength per square inch of not less than 60,000 pounds and not more than 67,000. The total tube surface in each boiler will be not less than 1,250 square feet. The total heating surface will be about 1,500 square feet. The working pressure required will be 130 pounds per inch. There will be two rectangular furnaces to each boiler, with curved tops flanged at ends for furnace doors and flues. Each boiler will contain 124 plain tubes 11 feet long, 3½ inches in diameter, though the Serve's ribbed steel tubes, handled by Charles W. Whitney, of New York, had been under consideration. The boilers will be fitted with domes 3 feet 6 inches in diameter and 6 feet long, respectively.

A SUCCESSFUL WRECKING JOB.

Capt. Homer Durand, writing to THE RECORD from Charlevoix, Mich., speaks in high terms of wrecker John Monroe, Jr., of that port. Capt. Durand says that after repeated attempts to release his schooner, the Anna P. Grover, stranded last August, a number of expeditions pronounced her a total loss after working from five to fifteen days each on her. Wrecker Monroe then undertook the work and in six days had the vessel safely in port ready for temporary or permanent repairs. Capt. Durand characterizes Monroe as a faithful, energetic and determined wrecker, and recommends his services to those in trouble in the vicinity of Charlevoix.

INLAND LLOYDS SUPPLEMENT.

Capt. Dan McLeod, manager of Inland Lloyds, has issued supplement No. 6 for October. Among the vessels newly inserted for the month are the I. W. Nicholas, 1857 tons, rated A1 and valued for insurance purposes at $150,000; W. H. Gratwick, 2,213 tons, rated A1 and valued at $175,000; W. H. Gilbert, 2,200 tons, rated A1 and valued at $150,000; C. L. Boynton, 52 tons, rated A1 and valued at $20,000. This latter vessel is a new steam tug built for wrecking and salvage purposes. The Ogemaw has been given an A2 rating and a valuation of $25,000, and the fine freight steamers Livingstone and Thos. W. Palmer a value of $150,000, each without further particulars. The barges Wm. Case, J. L. Ketchum and Potomac are withdrawn this month from the Register, the schooner Smith & Post being given a B1 –|– rating and a value of $1,800.

AMPLITUDES.

The following approximate amplitudes of the Sun's rising will be given each week in this column during the season of navigation: A second bearing of the Sun may be taken at sunset by reversing the bearings to read west instead of east, as, for example, E. ½ S. for a sunrise bearing would read W. ½ S. for a sunset, or E. 4° S. to W. 4° S.

LAKE ERIE AND S. END LAKE MICHIGAN LAT. 42° N.

Sunrise.	Bearing (degrees.)	Bearing (points.)
Oct. 3	E. 4° S.	E. ⅜ S.
Oct. 6	E. 5° S.	E. ½ S.

LAKE ONTARIO. S END HURON AND CENTER LAKE MICHIGAN LAT. 44° N.

Sunrise.	Bearing (degrees.)	Bearing (points.)
Oct. 3	E. 6° S.	E. ½ S.
Oct. 6	E. 7° S.	E. ⅝ S.

N. END LAKES HURON AND MICHIGAN, LAT. 46° N.

Sunrise.	Bearing (degrees.)	Bearing (points.)
Oct. 3	E. 6° S.	E. ½ S.
Oct. 6	E. 7° S.	E. ⅝ S.

LAKE SUPERIOR LAT. 48° N.

Sunrise.	Bearing (degrees.)	Bearing (points.)
Oct. 3	E. 6° S.	E. ½ S.
Oct. 6	E. 7° S.	E. ⅝ S.

With a compass correct magnetic, the difference between the observed and true bearings will be the variation for the locality. If there is any deviation on the course the vessel is heading at the time of taking the bearing the result after the variation is applied will be the amount of deviation on that course.

CHICAGO SHIPMENTS.

The movement of all kinds of package freight out of Chicago is very brisk. Shipments for the week ending September 30 were:

Erie, 31,143 barrels of flour, 110,000 bushels of corn. Ogdensburg, 150 barrels of flour; 90,070 bushels corn, 100,000 bushels oats. Buffalo, 92,731 barrels flour, 300,712 bushels wheat, 271,128 bushels corn, 50,000 bushels oats, 242,000 bushels of barley. Oswego, 42,000 bushels corn. Port Huron, 30,924 bushels of corn, 110,000 bushels oats. Kingston, 52,000 bushels wheat.

Total, 124,024 barrels flour, 352,712 bushels wheat, 544,122 bushels corn, 260,000 bushels oats.

NOTICE TO MARINERS.

UNITED STATES OF AMERICA—NORTHERN LAKES AND RIVERS—MICHIGAN.

FOURTEEN MILE POINT LIGHT STATION.—Notice is hereby given that, on or about October 15, 1894, a light of the fourth order, showing fixed white, varied by a red flash every 20 seconds, will be established in the structure recently erected at Fourteen-Mile Point, Lake Superior, Michigan.

The light will illuminate about 250° of the horizon, and will be visible from all points of approach within its geographical range. The focal plane is 60 feet above lake level, and the light may be seen in clear weather, the observer's eye 15 feet above the lake, 15¼ miles.

The structure consists of a square red brick tower, rising in the center of the front of a double red brick dwelling, with red roof. The tower is surmounted by a black cylindrical watchroom carrying a lantern gallery and lantern, also black.

The approximate geographical position of the light house, as taken from Chart No. 32 (Lake Superior No. 2) of the U. S. survey of the northern and northwestern lakes, is:

Latitude, North, 46° 59′ (33″).
Longitude, West, 89° 07′ (20″).

Bearing and distance of Ontonagon light house, as taken from the above named chart, is S. 48° W. (SW. ¼ W.) 12¾ miles.

During thick or foggy weather a 10-inch steam whistle will sound blasts of five seconds' duration, separated by silent intervals of 25 seconds, thus:

Blast	Silent interval	Blast	Silent interval
5 sec.	25 sec.	5 sec.	25 sec.

The fog signal house stands about 150 feet NW. by W. ½ W. from the center of the light tower. It is a red brick structure, with corrugated iron roof painted red. A frame boathouse, with red roof, stands about 50 feet to the northeastward of the fog signal house.

Bearing is true, and distances are in statute miles.

By order of the light-house board.

JAMES A. GREER,
Rear-Admiral, U. S, Navy, Chairman.

Office of the light-house board, Washington, D. C., September 27, 1894.

FIFTY MILE AN HOUR MAIL STEAMERS.

The following letter has been sent to the Bristol postmaster-general by G. A. Haig, whom we are fain to pronounce an English crank:

"SIR:—The following are startling figures, but they are true, and I hope you will read them:

If the post-office put on seven steamships which go 50 miles (43.4 knots) an hour—they can easily be made—you could run a weekly mail to Halifax, Canada, in 2½ days; to Egypt, in 3½ days; to Bombay, in 6½ days; to Cape Town, in 6½ days, and to Melbourne, Australia, in 12 days.

A steamship 600 feet long, 50 feet broad, 60 feet deep, and drawing 26 feet of water, would be about three-quarters the size of the Campania. But if filled entirely with machinery and coals from the bottom up to four feet above the water line, she could steam 4,500 miles at 50 miles an hour, and the whole of the upper part of the vessel from four feet above the water (30 feet high) would be available for crew, passengers, mail and light parcels.

Each of the steamers named above could accommodate 500 first-class passengers with one tier of berths, or 1,000 with two tiers, one berth above the other, and would carry 500 to 1,000 tons of mails and light parcels. A passenger at sea only weighs about 4 cwts. with his baggage, or five to the ton. The 50-mile mail steamers, therefore, would get the richer portion of the passenger traffic, and the present cargo steamers would reduce their speed and carry only third cabin passengers. If the steamers could run full (it is not likely), 1,000 passengers to Australia at £120 would be £120,000 each voyage, or 500 passengers would be £60,000, exclusive of the value of the mails and parcels."

UNDER WHICH POLICY?

An Eastern paper publishes the following on the loss of the steamer City of Portsmouth, which ran aground and was burned recently:

"The steamer carried both fire and marine insurance, $5,000 of each, and now the question arises, who is to pay the loss? A marine policy insures against fire under some circumstances, and had there been no fire policy the marine company would have paid. A fire insurance company usually pays after ascertaining the sound value of the insured property immediately before the fire. It will be a difficult task to asertain what the City of Portsmouth was worth before the fire. By grounding, did she depreciate in value 5 per cent. or 50 per cent.? Could she have been pulled off easily, or would she have been a total loss?"

THE MARINE RECORD

ESTABLISHED 1878.

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CLEVELAND, O., OCTOBER 4, 1894.

OFFICERS of the steamboat inspection service, ship masters and pilots will do well to study up the new "Rules of the Road," which are to come in force on the lakes next March. The amended rules have an international endorsement and are now universally adopted. Certainly the lake marine can have no cause to ignore so clear and concise a code in any particular. We have long fought the principles contained in the diagrams issued by the board of supervising inspectors of steamboats as being obsolete and misleading, while nothing but praise can be said regarding the amended code. One of the most distinct is perhaps Article 21, which states: "Whereby any of these rules, one of two vessels is to keep out of the way, the other shall keep her course and speed." This rule will do away with the idea that both must manoeuvre or that the first boat giving a passing signal has the right of way and may choose her own side of passing.

IT is somewhat remarkable that large steel and wooden steamers in the iron ore trade on the lakes have not ere this been fitted with wooden platforms fore and aft in their holds, such as are frequently used in the same trade in other parts of the world. There is no innovation in this departure; every possible argument is in its favor and the exclusively iron ore carrier that first adopts it will have an advantage over her competitors in loading, trimming and discharging, as well as in making the vessel easier and more seaworthy in heavy weather. With a cargo kept well up in the body of the vessel, there would be less occasion to trim ore towards the ends, and this alone would be a feature in the easement of the hull structure. Without the hold platform having been tried as yet on the lakes, it is an open question whether it would not be better in every way to lay such a temporary deck on top of the water bottom than to place the same weight of material as sheathing on the outside, in so far as the Lake Superior trade was concerned, but in the Escanaba trade, especially to South Chicago, the platform would be an unqualified advantage. So as to secure a liberal quantity of ballast in metal hulls, deep water bottoms are excellent, yet a temporary wooden platform three to six feet high would be equally of advantage to most dead weight carriers on the lakes.

LIQUID FUEL TESTED.

On Thursday last a final and highly successful trial of liquid fuel for tugs was made in Chicago River. Representatives from all the principal tug companies at Chicago were on board, and with the exception of the tug owners all had predicted a flat failure. Among others present at the test were the city smoke inspector, city engineer and E. E. Billow, the constructing engineer who fitted the tug with the oil burning apparatus.

In former tests the scheme almost met defeat from the fact that the tug's boilers foamed as a result of using the dirty river water. The foam and dirty water troubled burners and put out the fires occasionally. This was overcome by the use of a "pilot light" in the firebox made with a coil of pipe through which the oil passes and becomes superheated and burns in the form of gas at the end of the pipe without the need of a jet. The "pilot light" keeps the fire from becoming extinguished at any time, and it appeared that the fire burned steadily as long as the steam pressure remained the same. If the steam rises or falls much it is only necessary to adjust the two valves governing the oil and steam jet. When only the "pilot light" is used, or when the tug is not in motion, the blower in the smokestack is used with just sufficient force to create enough draft to carry off the gases from the furnace.

During the ten hours that the tug was in service, the engine working almost continuously under a full head of steam, scarcely a hatful of smoke was admitted from the stack, and the steam was kept at the blowing-off point every minute. The test was a severe one, the load to be towed being made twice as heavy as ever before. Indeed, it is stated that the tug could not have made the trip at all with coal for fuel, but using oil it had steam to spare. No trouble was experienced in controlling the apparatus, though the engineer was "a green hand" at the work, and he is quoted as saying the simple trick of burning oil may be learned in two hours with little instruction.

The question of expense was settled in favor of oil as compared with other fuel. The quantity used was 640 gallons, which cost $10.70, while the tugmen present estimated that the coal which would have been required to make the same trip would have cost $15.20, so that the oil permits a saving of 39 per cent. The kind of coal referred to is not stated, but it is fair to presume it is not the poorest sort.

The cheapness of oil per unit of power is not its only value as a fuel for the making of steam. It is found with the oil fuel that the production of heat is steady, when that is desired, and for the meeting of sudden calls for "more power" the oil has an immense advantage over any kind of coal. The combustion is complete. The oil is sprayed into the fire chamber by the aid of steam and every particle of it is made to burn, so that there is no power wasted. No time has to be lost in cleaning flues, since there is no accumulation of soot. A great saving of time is effected by taking on a supply of oil in a few minutes through a pipe, instead of occupying some hours in "coaling up," while the labor of shoveling into the furnace and the attendant loss of heat are avoided. It appears that the only objection made in previous experiments with oil on tugs has been obviated by the use of the "pilot light" heretofore mentioned, and fitted in the fire box, which keeps the fire from being extinguished at any time except when it is wanted to go out. Besides all this, there is a notable economy in the time required to make steam. It was effected on Thursday last in just forty minutes, as against two hours needed if coal be used.

RULES TO PREVENT COLLISIONS.

A circular is now being issued by the bureau of navigation, treasury department, showing the changes in lights, steering and sailing rules embodied in the act to adopt regulations for preventing collisions at sea, approved August 19, 1890, and proclaimed by the President to take effect March 1, 1895.

These rules, it is stated, are to be followed by all public and private vessels of the United States upon the high seas, and in all waters connected therewith navigable by seagoing vessels, and a copy of same will be given to shipmasters at any lake port by the collector of customs.

Assuming at this time that the new rules will be enforced next season on the lakes, as, in the light of judicial decisions, the lakes are high seas and they are certainly navigable for sea-going craft, we note the material changes in the rules differing from the former clauses.

Concerning lights, it is prescribed that from sunset to sunrise no other beyond the regulation lights shall be exhibited so as to be mistaken in any way for the authorized signal lights, which must show five miles for a masthead and two miles for a side light. The range lights for a steamer placed on the line of keel with the after light fifteen feet higher than the forward one, is left optional, at least, the clause reads, "A steam vessel under way *may* carry this additional range light." When towing more than one vessel, an additional light placed six feet above or below the present towing lights must be used, if the length of the tow exceeds six hundred feet, it is also permitted to carry a steering light, placed abaft the funnel or aftermast for the vessel towed to steer by, but such light must not be visible forward of the beam. Relative to anchor lights, a vessel under one hundred and fifty feet in length need only exhibit one light, but if over that length, two lights must be shown.

In the sound signals for fog perhaps the greatest changes have been made. According to the new rules, a vessel when towing must sound three blasts in succession, namely, one long and two short blasts; the vessel towed may also give this signal and no other. Desiring to pass in a fog, when two steamers are going the same way, the boat ahead is to signify her assent by giving three blasts, namely, short, long, short, with about second intervals between them.

The preliminary wording in the steering and sailing rules contains a caution which cannot be given too much attention to by deck officers. It is therein stated a risk of collision can, when circumstances permit, be ascertained by watching the compass bearings of an approaching vessel. If the bearing does not appreciably change a risk of collision is evident, to which might also have been added that if the bearing draws ahead the vessel will pass ahead, and if it changes more aft the vessel will pass astern, each vessel of course maintaining her course and speed. The only possibility of colliding, therefore, rests with the fact of not altering the bearing of hull or lights, showing that the vessels are on a line of collision, and the quicker either may alter the sooner the risk is passed.

A LUMINOUS LIFE BUOY.

An electric lighted life buoy for life saving purposes is among the recent inventions now being perfected.

For at least half a century this feature has been in the minds of seamen, but with their usual lack of mechanical fitness or ability, no successful device has ever been placed upon the market.

In the case of losing a man overboard on a dark night, with perhaps a moderate sea on, it is most difficult to locate the buoy or other object thrown overboard to assist the person in keeping afloat until picked up, as it frequently happens that when the object is on the crest of a wave the small boat is in the hollow, and *vice versa*. According to *The Mariner*, London, a Berlinese is now engaged in making a life buoy which is fitted with an electric lamp so as to be visible at night in the water. The floating apparatus is made of water-proof linen, and is sufficient to bear the weight of three persons in the water, life belts being attached to the buoy. Inside the canvas buoy is a double wooden box containing an accumulator with gelatine material, and it is capable of feeding an incandescent lamp for six hours. The incandescent lamp surmounts the floating buoy in a strong wire frame, and is further protected by an outer strong glass globe. When the apparatus is hanging on board ship, the weight of the lower portion automatically switches off the current, but as soon as the buoy is released and dropped into the water, four powerful springs switch the current on. The accumulator will last for two months before requiring to be recharged, so that the apparatus can be employed on board ship where there is no dynamo. The apparatus weighs about 100 pounds, but the accumulators can be made smaller with, of course, a corresponding decrease in the duration of the light. These accumulators with gelatine filling do not suffer from the motion of the ship, or from the fall into the water.

For actual every day use there seems to be but one thing wrong with this new device, and the same fault may be found with nearly all recent inventions designed for carrying on shipboard. Such a buoy as the Berlinese is working on is more of a three man life raft than a handy contrivance for throwing overboard in a hurry, and it therefore embraces the defect before spoken of as being too cumbersome for practical use. No ship can afford to load herself with space-taking or weighty life saving or preventative appliances which may not be called into use during the course of a vessel's career, though, of course, all such devices are mighty good to have at hand during an emergency.

AN EYE OPENER FOR UNDERWRITERS.

The case of the steamer Corinthian, mentioned in another column of this issue, goes to show a remarkable point in insurance cases that has been brought out by the Canadian courts. This is the case of a passenger steamer engaged in the trade between Toronto and Montreal, and while so engaged during the summer of 1892, the vessel took fire going through the long rapids, was beached and abandoned to the insurance companies as a total loss. The vessel was insured against fire risk only for the sum

f $40,000 and was valued in the company's books a somewhere about $60,000, although she was then aboutt 37 years old. After the wreck the owners claimed the total sum insured for, but the insurance companies on the other hand claimed that under a fire risk they should only pay for the value destroyed by fire, and that the whole outfit was not worth $40,000, although they did insure for that sum and accepted the premium without any qualification whatever beyond the ordinary form of policy. The result of this was that both parties signed a bond of arbitration, agreeing to abide by the decision of the arbitrators upon the value of the property destroyed, the owners no doubt acting under the assumption that the value would be at least set above the $40,000 and they would thus get their full claim, instead of which the arbitrators' decision was for $20,000 and the wreck was sold for $2,000 The owners at once set proceedings in motion to have the award set aside and the arbitration opened up again, consequently the case was tried in the Superior Court at Montreal, where Judge Tate decided that the award had been skillfully and honestly made, and that both parties having signed the bond it should therefore stand.

Now, however, the owners have opened up the case in the Ultimate Court of Appeals, where it has been decided that they are entitled to receive the full sum insured for, viz: $40,000, and herein lies the moral lesson to the insurance companies, not to cover for a higher value than they know the property to be worth expecting in the end to get out of it by claiming over insurance or policy quibbles.

LAKE FREIGHTS.

Iron ore rates are steady at former quotations, 85 cents, 70 cents and fifty cents from Ashland, Marquette and Escanaba, respectively. Coal rate from Ohio ports to the head of the lakes is back again to 40 cents, with rather light chartering. The Buffalo coal rates are steady at last week's quotations, and but for the wavering condition of grain freights out of Chicago, there would be but little change to record during the week; 1¼ cents on corn and 1⅜ cents on wheat to Buffalo are the figures that the latest chartering has been done at Chicago to Buffalo. The Oswego coal rate is now quoted at 50 cents Toledo, 65 cents Duluth and 90 cents Chicago.

WHARVES OF THE LEHIGH VALLEY COAL CO. AT AT THE HEAD OF THE LAKES.

The new coal dock of the Lehigh Valley Coal Co. is creating much interest here and at all points where bulk freights are to be stored and reloaded, for its claims of superiority are, among others, that less space is occupied by the coal, and chiefly that the cost of screening and reloading into cars for shipment is reduced to 4 or 5 cents a ton—a very important matter if proven.

The dock, which is solid filled with sand, occupies a space of about 500,000 square feet, its length on the dock face being some 800 feet. Running completely around the space is a railway track which comes in at the south end, passes along the rear up a steep incline to a car platform 15 or 20 feet high, turns down the north side, at the water front separates into double track and runs along the face of the dock to the point of entrance where it connects with the general railway system of the head of the lakes. In the space enclosed by this track are to be two parabolic steel buildings for the storage of anthracite, each 300 feet in diameter and 100 feet high and a bituminous coal pile. In the north corner, back of the entering track, are steep trestles up which run small cars dumping into bins below for the retail trade. These bins discharge into city delivery wagons on the pulling of a slide.

While the general space arrangement is apparently excellent, it is in the method of handling, both to and from the steel storage buildings, that the chief interest will lie. From the center of either building toward a common point on the dock front runs a steel tunnel, 7 feet in diameter, and sunk below the floor of the house. In each are two endless chains, carrying elevator buckets, onto the upper side of which discharge steel pipes of from 14 to 18 inches diameter, and 12 feet apart. These lead from the floor of the house, and it is intended that when opened, by pulling a door, the coal shall flow down through them to the endless conveyor, and be carried on it out and up to the top of a small building situated on the front of the dock and between the double railway loading track before mentioned. At an elevation of 55 feet the coal will enter this screening house, will fall onto revolving screens, and flow out into railway cars on either of the tracks, or into smaller dust and screenings cars on tracks directly under the house. To bring the coal, as the quantity in the storage house diminishes, to the openings in the floors, there are five reloading tracks, in concentric circles, on which will travel a shovel, pushing the coal to the holes in the floor. It is expected that all the work of handling from the storage buildings will be done by half a dozen men, outside the machinery force, and that 60 or 70 will be displaced.

The coal will be received into these houses by the Bogle system. Three Bogle movable towers, 120 feet high, will be erected at the dock front, and from them the coal will be conveyed back and dropped.

North of the two anthracite buildings will be a bituminous pile, which is also to be operated in a new way. Steel towers run from the front to the back of the pile, carrying what is called a traversing conveyor, much like an overhead traveling crane, and on this will work a steam shovel to handle and reload coal. This pile will also be filled from vessels by the Bogle process.

This method of handling coal has its disadvantage in first cost, and its advantage in subsequent saving. It is understood that the entire work outlined above, and which will not be completed before next summer, will cost $500,000, while the storage capacity of each anthracite building, filled to the top, is only 50,000 tons. It is hoped to get a little coal in one of the buildings before navigation closes.

AGGREGATE LAKE TONNAGE.

Through the courtesy of the U. S. Commissioner of Navigation, Eugene T. Chamberlain, we are enabled to give at this time a statement of lake tonnage for the fiscal year ended June 30, 1894.

These official statistics furnished by the bureau of navigation are significant in their import to those who are watching closely the bearing of the commerce on the Great Lakes and it is noticeable that while several ports exceed the Cleveland district in the number of vessels, the Cuyahoga leads all others in the aggregate tonnage.

CLASS.	NO.	GROSS TONS.
Steam	1731	843,239.65
Sail	1139	302,985.31
Canal	386	41,961.25
Barge	85	39,214.51
Total	3341	1,227,400.72

DISTRICT.	NO.	TONNAGE.
Cuyahoga, O.	259	234,733.76
Buffalo Creek, N. Y.	351	177,991.75
Port Huron, Mich.	455	171,628.63
Detroit, Mich.	271	161,845.83
Milwaukee, Wis.	393	93,766.75
Chicago, Ill.	305	83,713.57
Champlain, N. Y.	331	*33,552.97
Marquette, Mich.	159	68,088.90
Sandusky, O.	99	48,433.68
Grand Haven, Mich.	289	34,753.49
Erie, Pa.	55	36,596.99
Oswegatchie, N. Y.	49	23,530.61
Oswego, N. Y.	52	*9,467.18
Toledo, O.	75	20,743.29
Niagara, N. Y.	27	12,872.21
Vermont, N. Y.	38	5,509.02
Genesee, N. Y.	21	1,779.41
Cape Vincent, N. Y.	52	3,803.57
Duluth, Minn.	56	4,500.52
Dunkirk, N. Y.	4	88.59
	3341	1,227,400.72

*Decrease due largely to withdrawal of canal boats from trade with Canada and to closer correction of records.

VISIBLE GRAIN SUPPLY.

The stocks of grain in Chicago elevators last Saturday evening were 25,831,000 bushels of wheat, 2,242,000 bushels of corn, 1,489,000 bushels of oats, 160,000 bushels of rye, and 71,000 bushels of barley. Total, 29,793,000 bushels of all kinds of grain, against 24,295,000 bushels a year ago. For the same date the Secretary of the Chicago Board of Trade states the visible supply of grain in the United States and Canada as 71,413,000 bushels of wheat, 4,305,000 bushels of corn, 8,234,000 bushels of oats, 336,000 bushels of rye, and 2,265,000 bushels of barley. These figures are larger than the corresponding ones a week ago by 1,224,000 in wheat and 113,000 in corn. The visible supply of wheat for the corresponding week a year ago increased 1,835,000 bushels.

THAT TORONTO DEEP WATERWAYS CONVENTION.

A council of the Toronto board of trade was convened on Monday afternoon to hear the report of Hugh Blain, delegate to the recent deep waterways convention. His report said it was very evident the convention had been captured in the interests of the west. Delegates from western States brought in the resolution, despite the interests of Canada, which called for 14 feet depth, to deepen the canals to 21 feet. He recommended that the board of trade place on record its disapproval of the methods of the convention, and especially of the decision of the committee on resolutions in ruling out of order the motion of the committee as to improve, which it thought necessary, namely 14 feet depth instead of 21. He winds up by recommending that the memorial be presented to the Dominion government, requesting it speedily to complete the work of improving the St. Lawrence canals on the plan adopted in 1890, and that joint action be taken by the various boards of trade in Canada.

THOSE PORT DOVER-CONNEAUT CAR FERRIES.

It is said that the matter of letting contracts for the construction of the two new car ferries to run between Conneaut, O., and Port Dover, Ont., for the Grand Trunk and Pittsburgh, Shenango & Lake Erie roads, will be settled by the middle of this month. Col. Dick, president of the latter company, principal promoter of the car ferry scheme, and organizer of the company that is to operate the two boats, is quoted as saying that negotiations are pending for the lease of one of the Toledo & Ann Arbor ferries for use this winter on the Port Dover-Conneaut route, but there has been nothing done at Conneaut toward the construction of slips or railroad approaches for a ferry service.

STAGE OF WATER AT ST. MARY'S FALLS CANAL.

DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

Depth of water at the St. Mary's Falls Canal for the week ending Oct. 4, 1894:

Sept.	27	8 a. m.,	14	feet	8	inches.	8 p. m.,	14	feet	9 inches.
"	28	"	15	"	9	"	"	14	"	10 "
"	29	"	14	"	9	"	"	14	"	10 "
"	30	"	15	"	0	"	"	15	"	1 "
Oct.	1	"	14	"	9	"	"	14	"	9 "
"	2	"	14	"	8	"	"	14	"	8 "
"	3	"	14	"	8	"	"	14	"	8 "
"	4	"	14	"	9	"	"			

W. B. STOCKMAN, L. F. O.

STORM WARNINGS.

During the West Indian hurricane, which lasted from September 24 to 29, the U. S. Weather Bureau did for the coast and its shipping what many have long desired to see attempted on the lakes in the spring and fall of the year.

In this cyclone, as it is termed by the bureau, a wind velocity of 88 miles per hour was recorded at Tybee Island, near the mouth of Savannah River, and the lowest barometer reading was 29.11, observed at Charleston, S. C. At 8 a. m., on the 28th, the hurricane curved off the land at Cape Hatteras and reached away in a N. N. E. direction.

To H. H. C. Dunwoody, acting chief of the bureau, is due much credit for his timely and accurate warnings of the intensity of the weather to be expected and the following reports taken from storm bulletin No. 2, containing chartlets of the storm's track adds prestige to the work of the weather bureau.

NORFOLK, VA., September 28, 1894.

Thirteen line steamers, one hundred and forty coasting vessels, and a hundred small craft obeyed warnings. Twenty coasting vessels ready to proceed to sea were held, and estimate that they were saved. One hundred and thirty thousand dollars' worth of property saved from high tide. Agents of the Old Dominion, Clyde, and Merchants' and Miners' lines wish to be quoted: "Words inadequate to express saving of life and property by your warnings,"

CHARLESTON, S. C., September 28, 1894.

Entire community praises bureau loudly, and say grand achievement of science in tracing tropical visitor so minutely. No vessels left port during Tuesday, Wednesday, and Thursday; many lives saved. Warnings of great value to rice interests. Damage slight. All shipmasters protected property. Goods in city moved long before storm tide arrived. One million dollars worth of property saved.

CORRESPONDENCE.

☞We do not hold ourselves responsible in any way for the views or opinions expressed by our correspondents. It is our desire that all sides of any question affecting the interests or welfare of the lake marine should be fairly represented in THE MARINE RECORD.

THE TRIBUTE OF AN ANCIENT MARINER.

To the Editor of The Marine Record:

SOMBRA, ONT., Oct. 3, 1894.

The obituary notice of Capt. Hackett, printed in THE RECORD last week was a fair tribute to one of the best of seamen. I also wish to add my testimony to the worth of an old shipmate. The late Capt. Thos. H. Hackett as a boy first sailed with me, then with his brother Henry in the schooner Conductor and again with me on the brig J. G. Deshler. Afterwards as mate with Capt. Guyles, of Cleveland on the E. M. Peck, Capt. Guyles resigning command to him later. When the Peck was sold to other owners he again shipped with me. In 1861 Mr. R. H. Harmon gave him charge of the A. Handy, lost the same season on Spectacle Reef where the fine high classed steamer Neosho is at this moment leaving her bones about 33 years later. Capt. Hackett again shipped mate with me on the schooner Saranac. Each winter in the long ago he worked with me at rigging vessels and after getting married he made his home on Courtland street, Cleveland. During all his career he was like a son to me and I always felt lonely without him.

The next season his old owner gave him the Narragansett to sail and after two seasons she was sold and Hackett started in the towing business. From master of the Zouave he went to the Prindiville, Castle and Torrent, afterwards sailing only for Alger Smith & Co., of Detroit, although he would have given his life for Mr. Harmon and called his son Ralph after him. Capt. E. M. Peck, of Detroit, was also one of his best friends and one whom he could not have been asked to give up too much for or do anything that Capt. Peck asked him to do. Without taking up too much of your valuable space I wish to record Capt. Hackett as being a man of excellent qualities, greatly respected by all who knew him and his death is deeply regretted. Possessed of an intelligent mind, a benevolent disposition, pleasant manners, and sterling honesty, he was thoroughly a good man whose life was useful and blameless. In relations of husband, father, friend, neighbor and citizen he discharged all his duties with fidelity and I think it may be truly said of him the only grief he caused was when he died.

Never more his voice as music
Shall come back to cheer our ear.
Hushed are now those footsteps
That I loved so well to hear.

Here in this lonely, humble bed,
Where myrtle and wild roses grow,
A son of Neptune rests his head,
For, reader, 'tis his watch below.

Long has he done his duty well,
And weathered many a stormy blast,
But now, where gentler breezes swell,
He's safely moored at last.

Tread lightly, sailors, o'er his grave,
His virtues claim a kindred tear,
And yet, why mourn a brother brave
Who rests from all his labors here?

Though here below his body lies
To mingle with the dust,
His soul has flown to brighter skies
To dwell among the just.

OLD CAPT. CHARLES GALE.

A LETTER OF INQUIRY.

ALPENA, MICH., October 2, 1894.

To the Editor of The Marine Record:

I have received a letter of inquiry asking for intelligence of William Bradburn, supposed to have been lost on the lakes during the present season, as he has not been heard of by his relatives since he left home in April. His family and friends are most anxious to hear from or about him and THE MARINE RECORD or its many readers might give the information desired to Mr. Bowman Lobo, Middlesex County Post-Office, Ont., or to the writer, D. McKenzie, keeper Middle Island life saving station, Alpena, Mich.

After a careful search, we have not met with the above name on our files, so that if any of our readers are aware of Bradburn's fate or location, we would thank them to communicate promptly.—[ED.

THE HOWDEN HOT DRAFT SYSTEM.

The Detroit Dry Dock Co., Detroit, Mich., being the sole owners and manufacturers for the lakes of the Howden hot draft system, have issued a brochure entitled "A Tale of the Smokestack of a Modern Lake Steamer," dedicated to the vessel owners and shipbuilders of the lakes.

In dealing with the economy of the Howden system as compared with natural draft, some of the statistics and particulars given in the work are as follows:

COMPARATIVE FUEL CONSUMPTION PER TON CARGO CARRIED PER MILE.

One of a fleet of modern ore carriers.....	1½ oz.
Nine steel steamers in the Escanaba trade....	1¼ "
A number of typical modern steamers.....	1 8-100 "
Steel steamer Harvey H. Brown (boilers fitted with Howden's hot draft system.....	8-10 "

It is mentioned in brackets that the steamer carrying a ton of cargo one mile with eight-tenths of an ounce of fuel has boilers fitted with the hot draft system. This is not responsible for the entire saving, for the boat may have more economical engines than some of those with which she is compared. Neither do the figures show the real economy, for the Brown carries this ton a mile an hour faster than the other steamers carried their ton. There are several sources in the employment of the hot draft system from which economy is derived. First is the perfect combustion of fuel, which is evidenced by the fact that the Brown burns 30 pounds of coal per hour to each square foot of grate surface, while in boilers of other steamers not fitted with the Howden hot draft system only 14 to 20 pounds are burned. By means of this hot draft more and smaller tubes are used, the up-take can be smaller, so that the gases are kept in the boiler longer and more heat is abstracted and absorbed by the water, thus increasing the steam generating capacity. An evidence of the saving of this retarding influence is shown by the temperature of the gases in the stack; on the Brown it is 450 to 500 degrees, while on all other steamers having boilers on which steam is maintained at 150 or 160 pounds, the temperature of the up-take is from 600 to 1,000 degrees. Even the 500 degrees of heat in the up-take of the Brown is utilized for heating the air that is forced by the fans to the furnaces, so that the air enters the furnaces of the Brown's boilers at a temperature of 270 degrees, as against 70 degrees in other furnaces. It is estimated that the Brown's boilers weigh from 70 to 80 tons. As nearly a third more fuel is burned per hour per square foot of grate surface than other boilers burn, it is reasonable to suppose that without this system one-fourth more boiler capacity would be required to furnish the same amount of steam. There is therefore 20 tons less boiler weight, and 20 tons more cargo can be carried each trip. The Brown's two boilers, with two furnaces each, are 13½ feet by 12 feet 2 inches, having 4,130 feet heating surface. They furnish steam at 160 pounds pressure to the engines (22, 35 and 56 by 44 inches), which drives the boat (359 feet over all, 342 feet between perpendiculars, 42 feet beam and 25 feet deep) 14½ miles light and 13½ miles loaded, with 3,046 gross tons. It should be borne in mind that the Brown has a wooden sheathing on her bottom.

Most owners have an idea that this system is all right for fast Atlantic liners and war ships, but not for ordinary lake freighters and then they say it costs. Anything that pays for itself in one season can hardly be said to cost anything. At least it is a gilt edged investment. As to its being suitable for lake steamers please refer to the table at the head of this article. If you doubt its accuracy convince yourself by reading some letters from a well known owner and engineer.

The Howden system was first introduced on the lakes in the twin screw steel passenger ship Virginia with results as given in the following letter from Mr. A. W. Goodrich, president of the Goodrich Transportation Co.:

CHICAGO, December 20, 1893.

"In reply to your letter of the 18th inst, inquiring about the results of the Howden system of hot draft now in use on our steamship Virginia will say, that since it has been in use we have had steady steam, and burned slack coal, which costs us $1.10 per ton less than the coal we were forced to use before we introduced the Howden system,

At the same time we applied the hot draft we also supplied the Virginia with new condensing apparatus built by the Knowles company, which gives a better vacuum requiring much less steam to operate than the original plant supplied by the builders.

Our saving in the price of coal has been 50 per cent. We attribute 33⅓ per cent, of the saving to the Howden system, in enabling us to burn a cheaper grade of coal and maintain steady steam. The balance, or 16⅔ per cent. we credit to the condensers made by the Knowles Co.

We are so well satisfied with the results on the Virginia that we have since fitted the Atlanta with the Howden system, and are now fitting it in the City of Racine and Indiana."

Yours very truly,

A. W. GOODRICH, President.

Here is another letter from the Graham & Morton Transportation Co.:

CHICAGO, January 18, 1894.

"I for one wish to say a good word for the Howden hot draft system. I have tried the steamer Chicora with natural draft and found that I was not able to keep over a hundred pounds of steam, with at least from 40 to 50 per cent. more cost, whereas in every case, with the same coal when the Howden draft was on, we had no trouble in getting more steam than we could use."

Very respectfully yours,

ROBERT MCCLURE, Engineer Steamer Chicora.

Since the time of fitting of the Virginia the following steamers have been fitted with the Howden system: Pioneer, Chicora, City of Alpena, City of Mackinac, W. P. Ketcham, Harvey H. Brown, Davidson's Nos. 61 and 64.

The Howden system is adapted to use of anthracite, slack, or other inferior quality of coal, which cannot be burned with natural draft.

NOTES.

MR. SINCLAIR STUART, chief surveyor for the United States Standard, of New York, is also the ship and engineer surveyor of America to the British corporation for the survey and registry of shipping.

THE following lake built vessels were assigned official numbers by the bureau of navigation, treasury department, during the week ending September 22, 1894: Steam: Nymph, 48 tons, Detroit, Mich.; Cisco, 16 tons, Chicago, Ill. Sail: George Penneman, 85 tons, Port Huron, Mich., built at Sebewaing, Mich.

THE first Atlantic telegraph cable took some twelve years for its successful laying. The last cable, which was laid in July last, took just fourteen days for the work, and it was a 50 per cent. heavier cable than the original cable. This last one makes twelve cables in the North Atlantic now in operation.

CAPT. ROBLEY D. EVANS, late naval secretary of the Light-House Board, and now commanding officer of the U. S. cruiser New York, will not admit ladies on board of the vessel on visiting days unless accompanied by a male escort. This order has been put in force in the interests of strict discipline, and under the circumstances seems a highly necessary one.

THE new plant of the Ohio Steel Co., at Youngstown, O., is equipped with what is said to be the largest electric pumping plant. The pumps are of the centrifugal type—three in number—driven independently with electric motor direct. The combined capacity of pumps is 4,500,000 gallons per day. The plant was built by the Davis Farrar Co., engineers, of Erie, Pa.

THE capacity of furnaces in blast September 1st was 151,113 tons, against 115,356 August 1st, and though most of the resuming works began near the end of August, the average production for the month may have been about 123,524 tons. The stocks of pig iron not held by the large steel companies were reduced 35,584 tons during the month, indicating a consumption of about 132,000 tons weekly.

A DISPATCH to the bureau of American republics announces that a plan is on foot for establishing a direct line of steamers from Buenos Ayres to New York. If the Argentine Republic will grant a subsidy of $200,000 a year to the company that wants to build the vessels, then the project will pan out. The design is to make the boats of 3,000 tons burden and of a build such that they can be converted into cruisers in case the Argentines want a navy on short notice.

REMOVAL OF BOILER SCALE.

A British contemporary recommends the following method of removing boiler scale: For a few days before the removal of the scale is to be undertaken introduce into the boiler a liberal quantity of ordinary soda. Then draw the fire, open all valves, and when the steam has blown off uncover the manhole. Open the blow-off cock about one-fourth and admit at the same time cold water, so regulating its admission that the water stands as high in the guage glasses as under ordinary circumstances. By this means the boiler will be gradually cooled. The deposit will be found at the bottom of the boiler, in the form of a slime, and only requires to be swept out.

CORRUGATED FURNACES.

The United States manufacturers of the corrugated furnaces advise us this week as follows:

"We notice on page 7 of your issue of the 27th ult. a description of the new American Line steamer St. Louis, now being constructed by William Cramp & Sons. There is an inaccuracy therein which we would like to call to your attention. You state that the boilers of this ship are fitted with forty-eight Purves furnaces, when the fact is that they are fitted with the well known Corrugated furnaces manufactured solely in this country by the Continental Iron Works, as advertised on cover page 2 of THE RECORD.

Very truly yours,

THE CONTINENTAL IRON WORKS.

WILLIAM L. BROWN, President.
WALTER F. COBB, Vice President and Treasurer.
W. I. BABCOCK, Manager.
O. R. SINCLAIR, Secretary and Asst. Treas.

Chicago Ship Building Company,

STEEL STEAM-SHIP BUILDERS.

101st Street and Calumet River.

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SHIP YARD OFFICE, "SOUTH CHICAGO 40."
CHICAGO OFFICE, 1013 ROOKERY, "MAIN 3447."

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Marine and Inland Department.

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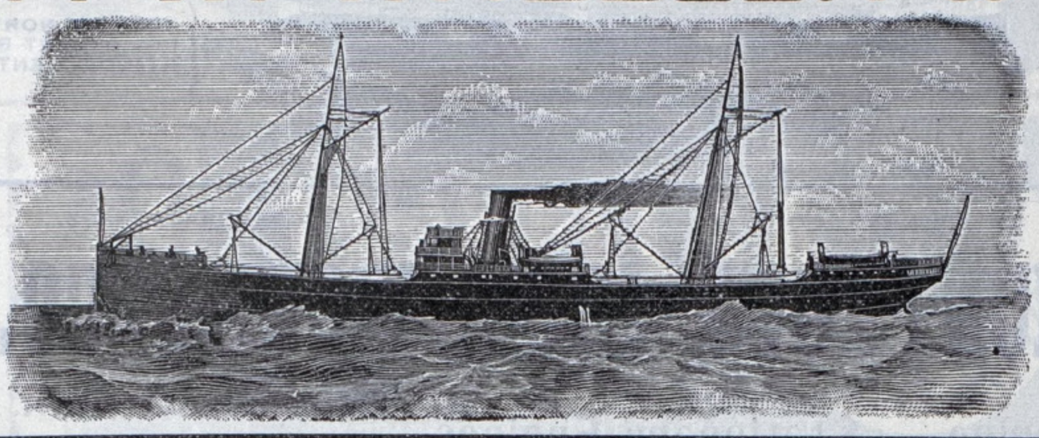
General Western Agents,
176 Jackson Street, Chicago, Ill.

F. W. WHEELER & COMPANY.,



BUILDERS OF ALL KINDS OF

IRON, STEEL AND WOODEN SHIPS,

FOR LAKE OR OCEAN SERVICE.

West Bay City, Mich.

F. W. WHEELER, Prest. E. T. CARRINGTON, Vice-Prest.
F. L. GILBERT, Secretary.

FRONTIER IRON WORKS,

MARINE ENGINES,

DETROIT, MICH.

INCORPORATED 1794.

Insurance Company of North America.

CAPITAL, Paid up in Cash, - - $3,000,000.00
ASSETS, - - - - - - 9,432,249.80

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EUGENE L. ELLISON, 2nd Vice-President. GREVILLE E. FRYER, Sec'y & Treas.
JOHN H. ATWOOD, Assistant Secretary.

Lake Marine Department. GEORGE L. McCURDY, Manager, CHICAGO, ILLS.

MARINE AND INLAND INSURANCE.

ATLANTIC MUTUAL INSURANCE COMPANY,

(ORGANIZED 1842.) Office, 51 Wall Street, NEW YORK.

Insures against Marine and Inland Transportation Risks and issue Policies making Loss Payable in England.

Assets over $10,000,000 for the Security of its Policies.

The profits of the Company revert to the assured, and are divided annually upon the premiums terminated during the year; thereby reducing the cost of insurance. For such dividends, certificates are issued bearing interest until ordered to be redeemed, in accordance with the charter.

J. D. JONES, Prest. W. H. H. MOORE, Vice-Prest. A. A. RAVEN, 2nd Vice-Prest. J. H. CHAPMAN, Secy.

BUCYRUS Steam Shovel AND Dredge Company,

South Milwaukee, Wis.

STEAM SHOVELS AND DREDGES

For all Purposes.

CAPITAL $300,000.

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Incorporated in 1891 under State Law. CLEVELAND, OHIO.

Successors to E. B. HALE & CO., established in 1852.

DIRECTORS:

W. H. BARRISS, President. H. C. RANNEY, Vice-President. W. B. HALE, Cashier.
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Would be pleased to meet or correspond with any one whose present Banking relations are not entirely satisfactory, or who, for any reason, propose to open a new account.

We promise to make every effort to make our Bank a safe, agreeable and profitable place to do business.

MARINE VALVE OIL

FOR CYLINDER LUBRICATION OF THE LARGE STEAMERS ON THE GREAT CHAIN OF LAKES IS UNSURPASSED. : : : : : : :

Marine Valve, Renown Engine, Eldorado Engine, Crank Case, Victor Signal, Dark Lubricating, Mineral Seal, Head Light, Arctic Cup Greases, and Lard Oils.

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Standard Oil Company's Marine Depot,

123 RIVER STREET, CLEVELAND, O.

Telephone 77. Main Office Telephone 682.

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Manitowoc, Wis.
Green Bay, Wis.
Marinette, Wis.
Oshkosh, Wis.
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West Superior, Wis.
Hancock, Mich.
Marquette, Mich.
Sault Ste Marie, Mich.
Michigan Central Railway and 10th St., West Bay City, Mich.
Eighth and Sears Sts., Saginaw, Mich.
46 Jefferson, Detroit, Mich.
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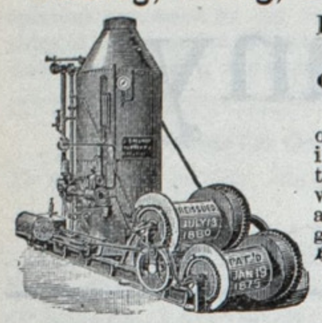
ATLANTIC REFINING COMPANY, French and 16th Sts., Erie, Pa.
D. ROBESON, Port Huron, Mich.
W. S. McKINNON, Ashtabula Harbor, O.
HULL & RAND Huron, O.
STANDARD OIL COMPANY, Star Oil Works, Buffalo, N. Y.
BABY & DALE, St. Clair, Mich.
N. C. ALTEN, Lorain, O.
A. F. HARRINGTON, Conneaut Harbor, O.
C. H. McCUTCHEON, Buffalo, No. 18 Ohio St.
A. H. McGONAGIL, South Chicago, Ill.
MARINE SUPPLY CO., Fairport, O.
F. KRANZ, Sandusky, O.
THE M. I. WILCOX CORDAGE & SUPPLY CO., Toledo, O.

Hoisting, Mining, Bridge Erecting,



Dock Build'g, Pile Driving, Coal o isting and Quarry Engines

of any power, with my improved Patent Friction Drums, with or without Boilers. Any amount of reference given. Established 1870. Send for Catalogue.

J. S. MUNDY,
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1741 Market St., Philadelphia, Pa.
22 Light St., Baltimore, Md.
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249 South Jefferson St., Chicago, Ill.
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Ask Agents of the Nickel Plate Road for Home Seekers' Excursion Rates on September 25th and October 9th. 152

Improved Bolt Helmet.

ESTABLISHED, 1844.

A. SCHRADER & SON

Manufacturers of
Submarine Armor
AND
Diving Apparatus.

32 ROSE ST., N. Y

A remarkable reduction in rates has been made to points in the west for Sept. 25th and October 9th. Ask Agents of the Nickel Plate Road. 154

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Home Seekers' Excursions

Sept. 25th and October 9th. Ask Agents of the Nickel Plate Road. 153

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Notice is hereby given that Mr. Richard E. Rispin, late General Agent of the Sun Insurance Company, of San Francisco, ceased his connection with the Company in that capacity on the 20th day of March 1894, and is no longer employed or in any way connected with said company or its business. All monies or credits due that Company being payable only to signature of the undersigned.

H. STEPHENSON SMITH,
Chicago, Oct. 1, 1894. Marine Secy.
40

Remember the Nickel Plate Road has a Home Seekers' Excursion September 25th and October 9th. 151

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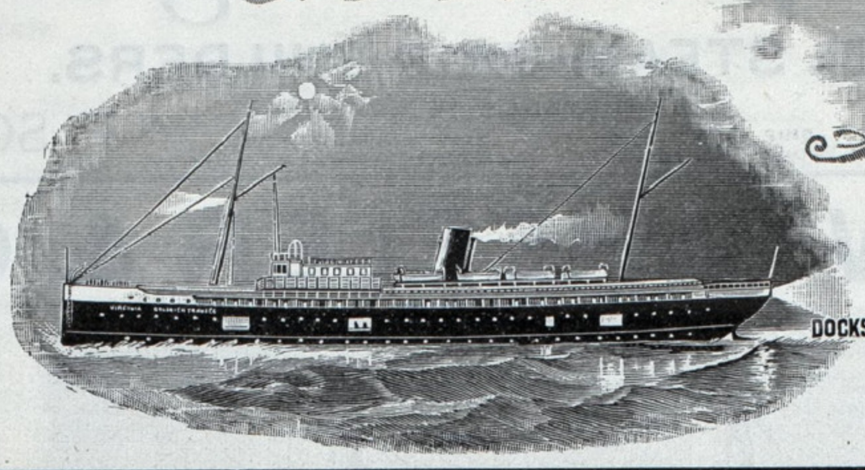

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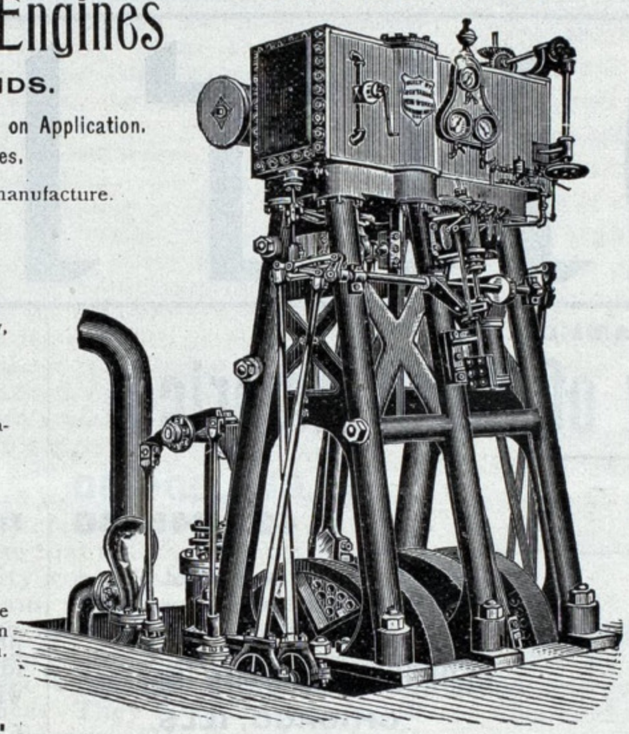

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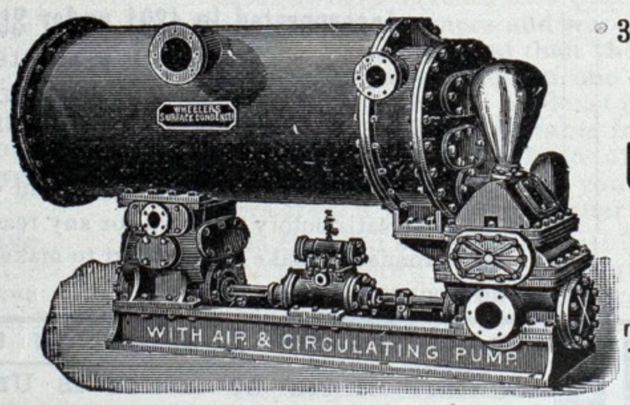

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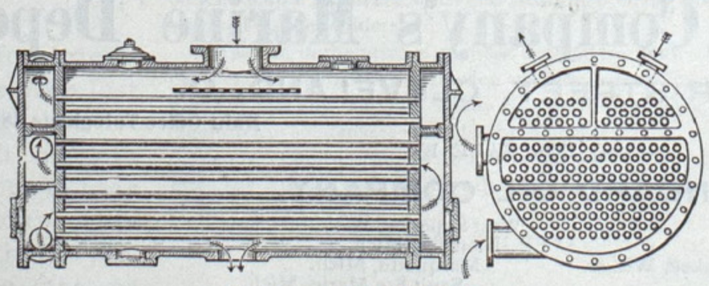

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PROPOSALS.

U. S. ENGINEER OFFICE, 349 Carondelet St., New Orleans, La., September 28, 1894. Sealed proposals for extension of East Jetty and for dredging at Harbor of Sabine Pass, Tex., will be received here until 12 o'clock noon, October 29, 1894, and then publicly opened. Information furnished on application. JAMES B. QUINN, Major, Engineers. 40–43

U. S. ENGINEER OFFICE, 366 Milwaukee St., Milwaukee, Wis., October 1, 1894. Sealed proposals for: Green Bay Harbor, Wis., dredging 200,000 cubic yards; Kewaunee Harbor, Wis., pile pier extension 325 feet; Manitowoc Harbor, Wis., construction of breakwater 400 feet; Sheboygan Harbor, Wis., pile pier construction 900 feet, will be received here until 12 o'clock noon, November 1, 1894, and then publicly opened. All information furnished on application. JAMES F. GREGORY, Major, Engineers. 40–43

U. S. ENGINEER OFFICE, 366 Milwaukee St., Milwaukee, Wis., October 1, 1894. Sealed proposals for: Harbor of Refuge, Milwaukee, Wis., extending breakwater 300 feet; Racine Harbor, Wis., pier extension 150 feet; Kenosha Harbor, Wis., pier extension 150 feet; Waukegan Harbor, Ill., pile pier extension 240 feet, will be received here until 12 o'clock noon, November 6, 1894, and then publicly opened. All information furnished on application. JAMES F. GREGORY, Major, Engineers. 40–43

U. S. ENGINEER OFFICE, 34 West Congress St., Detroit, Mich., September 12, 1894. Sealed proposals for furnishing all labor, materials and appliances, and removing Shoals of Boulders, both bedded and loose, and other material, from vicinity of Ballards Reef in Detroit River, will be received here until 2 p. m., standard time, October 12, 1894, and then publicly opened. All information furnished on application. O. M. POE, Col. Corps of Engineers. 37–40

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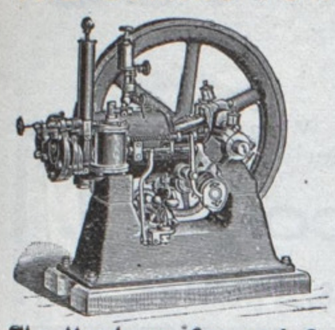

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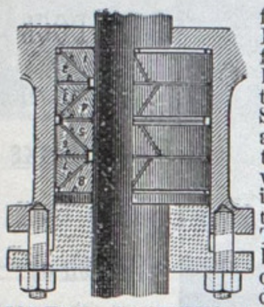

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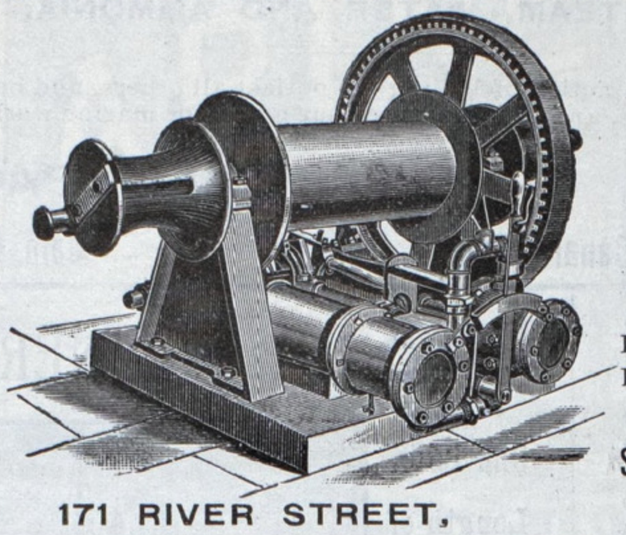

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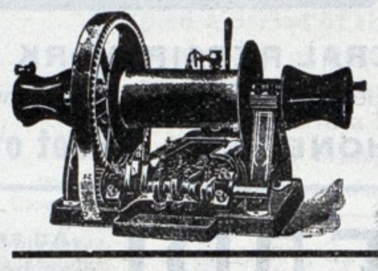

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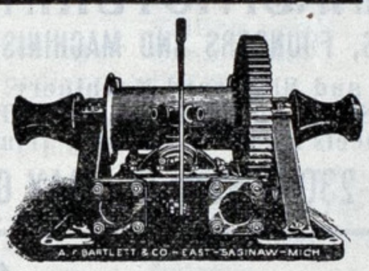

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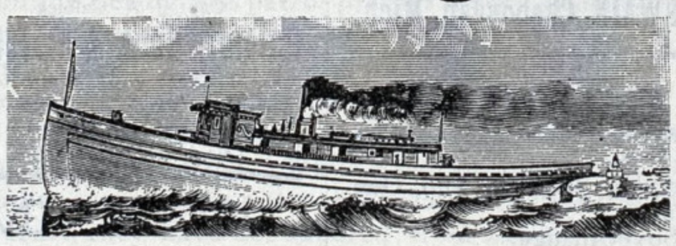

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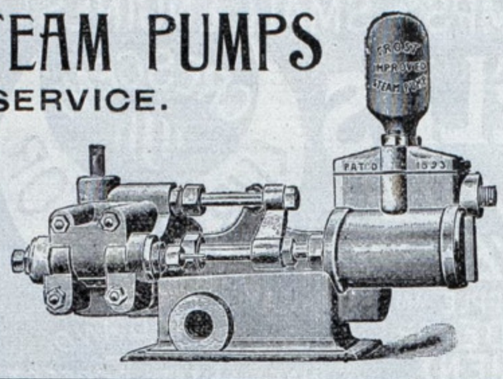

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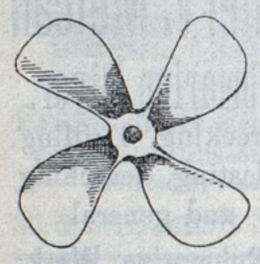

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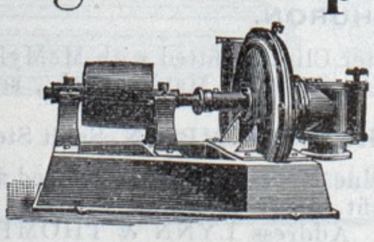

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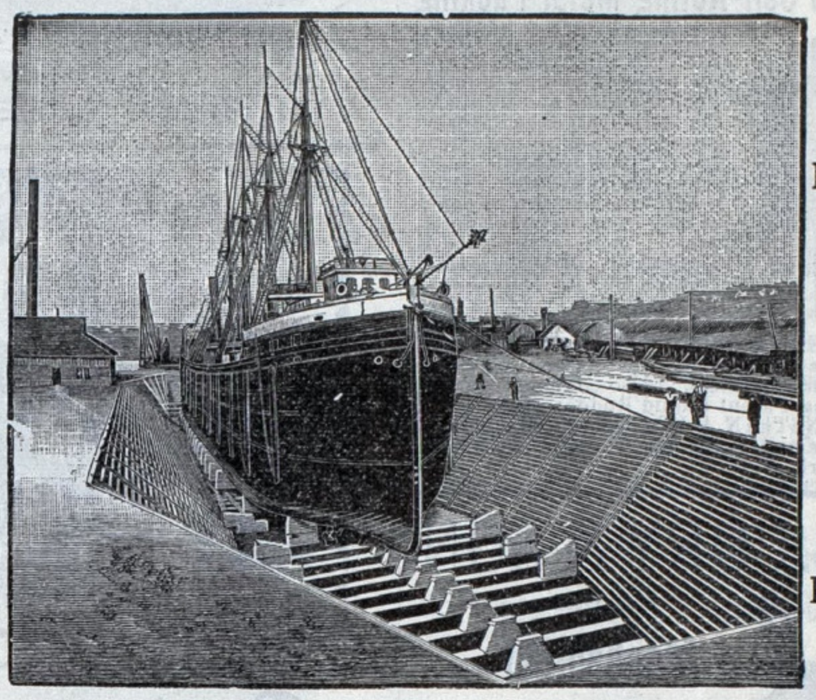
Length of Keel Blocks		Length of Keel Blocks
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